Mu-Ping Nieh, PhD.

CONTACT INFORMATION

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EDUCATION

1991 – 1998	Ph.D.	University of Massachusetts, Amherst Chemical Engineering/Polymer Science & Engineering
1985 – 1989	B.Sc.	National Taiwan University, Taipei Chemical Engineering

APPOINTEMENTS

2010 – now	Associate Professor	University of Connecticut
2007 – 2010	Associate Research Officer	NRC-CNBC
2005 – 2007	Assistant Research Officer	NRC-CNBC
2004 – 2005	Research Associate	NRC-CNBC/ University of Guelph
2001 – 2004	Visiting Fellow	NRC-CNBC, Chalk River Laboratories
1998 – 2001	Postdoctoral Researcher	National Institute of Standards & Technology (NIST)/ Penn. State Univ. (PSU)

ACHIEVEMENTS

1. Formulating active therapeutic/diagnostic liposomes suitable for molecular imaging and treatment of Alzheimer, cancer and other diseases, collaborating with scientists at institute for biological sciences (NRC-IBS), institute for biodiagnostics (NRC-IBD) and institute for national measurement standards (NRC-INMS)
   - This project leads to two provisional patents (2007 and 2008, respectively), a non-disclosure agreement with McGill University (2008) and a memorandum of understanding (2008) between NRC (Canada) and MDS-Nordion, a global life-science company with US$1.1 billion in net revenues, employing 5,500 highly skilled personnel in 29 countries.
2. Designing and constructing Canadian first small angle neutron scattering (SANS) spectrometer
   - This SANS capability has attracted at least 5 research projects in structural characterization of soft materials (from universities and national research institutes).
3. Pioneering in establishing the structural phase diagram of magnetically and mechanically alignable phospholipid mixtures (known as “bicelles”) in solutions, which are commonly used as substrates for membrane-associated proteins to study their structures
   - The total number of citations of my publications related to this topic is over 300.
4. ~ 50 publications in highly ranked international refereed journals, 4 book chapters, 20 invited talks and ~ 40 conference presentations
5. As a committee member co-organizing “Soft condensed matters” session at American Conference on Neutron Scattering (an international conference) in 2010.
6. Co-organizing “neutron scattering on hydrogels” workshop for Advanced Food & Materials Network, AFMNet (a Network of Centre of Excellence, NCE) at Ryerson University (Toronto) in 2006
7. Co-organizing the “Soft Condensed Matter” symposium and chairing the “Surfaces and Interfaces” session at 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada
8. Promoted to Associate Research Officer at National Research Council of Canada in 2007

EXPERIENCES

1. Developing a comprehensive model to analyze the morphology of per-fluorinated comb-shaped proton exchange membranes (PEM) for fuel cells based on neutron scattering data
2. Conducting researches in understanding relationship between molecular architecture and conformation of soft matters such as polymers [*polyvinyl alcohol hydrogel, polystyrene, oligo(ethylene glycol)methyl ether methacrylate, 2-methacryloyloxyethyl phosphorylcholine*], lipids (*a variety of phospholipids and lipopolysaccharide*), surfactants (*rhamnolipid and Gemini surfactants*) and proteins (pepsin, Saposin-C and EmrE) under various sample environments (controlled temperature, salinity, humidity) and geometries (thin films, porous media).
3. Supervised 5 summer/co-op undergraduate students and co-supervised 3 graduate students
4. Teaching "Small Angle Neutron Scattering" course at 2006 and 2009 CNBC summer school

EXPERIMENTAL EXPERTISE

Light, X-ray and neutron scattering (Small Angle Neutron Scattering, Diffraction, Reflectometry etc.), Optical Microscopy (OM), Gel Permeation Chromatography (GPC), Gas Chromatography (GC), Fluorescent Spectroscopy, Rheometer

COMMITTEES

- Serving as an editorial board (biomembrane) member for "Global Journal of Biochemistry"
- Oak Ridge National Laboratory Neutron Scattering Science Review Comittee
- Reviewing neutron scattering beamtime proposals for NIST Center for Neutron Research, Oak Ridge National Laboratory (Spallation Neutron Source and High Flux Isotope Reactor) and CNBC.
- Reviewing research proposals for National Science Foundation, USA
- Reviewer for publications in international prestigious journals e.g., Langmuir, European Biophysics Journal, the Chemistry and Physics of Lipids, Molecular Membrane Biology, PMC Biophysics, Food Biophysics)

SCIENTIFIC OUTPUT (in APPENDICES)

Refereed Publications: 53 (in Press: 0)
(Total citations > 600 times according to Scopus)
Patents: 2
Invited Talks (after 2000): 23
Book Chapters: 5 Project Reports: 4
Conference Contributions: 47

AWARDS/FUNDING

2009 – 2011	AFMNet "Biopolymer based controlled release systems for biomedical applications" – $400,000 for 2 years (as a key collaborator)
2008	NRC – Steacie Institute for Molecular Sciences (SIMS) ***"Significant Partnership"*** **Award**
2005	NRC VP minor Capital and CNBC – $233,000 for X-ray reflectometer (co-applicant)
2004 – 2006	AFMNet "Developing monodisperse spontaneous unilamellar vesicles of phospholipid mixtures" – $ 65,000/ year (as a key researcher)
2001 – 2004	Visiting Fellowship, Natural Sciences & Engineering Research Council of Canada (NSERC) – $ 40,000/year
2001 – 2002	Research Project with Air Products and Chemicals Corp. – $ 60,000/year

1986 – 1989 “Book Coupon Awards” (granted to students whose academic achievement is at top 5%), National Taiwan University

MEMBERSHIPS

Canadian Association of Physicists, Chemical Institute of Canada, American Physical Society, American Chemical Society, Biophysical Society, Neutron Scattering Society of America, Deep River Free Methodist Church, Deep River Chinese Christian Fellowship (Chair)

APPENDICES

PATENTS:

- A. Abulrob, D. Stanimirovic; U. Iqbal, **M.-P. Nieh**, J. Katsaras "Single Domain Antibody-Targeted Carrier for Contrast Agents and Drug Delivery Agents" **2008** (12078-1). – to be extended to a full patent in 2010
- X. Qi, **M.-P. Nieh**, J. Katsaras "Spontaneously formed ellipsoidal phospholipid unilamellar vesicles" **2007** (US2007081880) – in the process of being extended to a full patent.

BOOK CHAPTERS

- N. Kučerka, **M.-P., Nieh** and J. Katsaras. **2010.** "*Small-Angle Scattering from Homogenous and Heterogeneous Lipid Bilayers"* in "**Advances in Planar Lipid Bilayers And Liposomes**" Vol. 12, Ed. A. Iglic and H. T. Tien, pp. 201 – 236. Academic Press (Elsevier Inc.)
- **M.-P., Nieh**, N. Kučerka and J. Katsaras. **2009.** "*Spontaneously Formed Unilamellar Vesicles"* in "**Methods in Enzymology**" Vol. 465, Ed. Nejat Düzgüneş, pp. 3 – 20. Academic Press (Elsevier Inc.)
- J. Katsaras, J. Pencer, **M.-P., Nieh**, T. Abraham, N. Kučerka and T. A. Harroun. **2008.** "*Neutron and X-Ray Scattering from Isotropic And Aligned Membranes."* in "**Structure And Dynamics of Membranous Interfaces**" Ed. K. Nag, pp. 107 – 134. Wiley.
- Pencer, J., T. T. Mills, N. Kučerka, **M.-P., Nieh** and J. Katsaras. **2007.** "*Small-Angle Neutron Scattering to Detect Rafts and Lipid Domains."* in "**Lipid Rafts**" Ed. T. J. McIntosh, pp. 231 - 244. The Humana Press Inc. (ISBN 13: 978-1-58829-729-7).
- J. Katsaras, V. A. Raghunathan, T. A. Harroun, **M.-P. Nieh**, M. Chakrapani, M. J. Watson. **2005.** "*Neutron Scattering from Biomaterials in Complex Sample Environments*." in "**Neutron Scattering in Biology - Techniques and Applications**". Ed. J. fitter, T. Gutberlet, J. Katsaras, pp.107 – 126. Springer.

PEER-REVIEWED PUBLICATIONS

1. ***(Review Article)*** G. Pabst, N. Kučerka, **M.-P. Nieh**, M. C. Rheinstädterm, J. Katsaras "Applications of Neutron And X-ray Scattering to the Study of Biologically Relevant Model Membranes" ***Chem. Phys. Lipid***. **163**, 460 – 479 (2010).
2. ***(Review Article)*** T. A. Harroun, N. Kučerka, **M.-P. Nieh** and J. Katsaras "Neutron and X-ray scattering for biophysics and biotechnology: examples of self-assembled lipid systems" ***Soft Matter* 5,** 2694-2703 (2009)
3. ***(Review Article)*** J. Katsaras, N. Kučerka and **M.-P. Nieh** "Structure from substrate supported lipid bilayers" ***Biointerphases* 3,** FB55-63 (2008).
4. ***(Review Article)*** N. Kučerka, **M.-P. Nieh**, J. Pencer, T. A. Harroun, J. Katsaras "The study of liposomes, lamellae and membranes using neutrons and X-rays" ***Curr. Opin. Colliod & Interf. Sci.,* 12,** 17-22 (2007).
5. ***(Review Article)*** J. Katsaras, T.A. Harroun, J. Pencer, T. Abraham, N. Kučerka and **M.-P. Nieh** "Small-angle neutron scattering and biomolecules" ***Physics in Canada,* 62,** 233-240 (2006).
6. ***(Review Article)*** J. Katsaras, T. A. Harroun, J. Pencer, **M.-P. Nieh** "Bicellar" lipid mixtures as used in biochemical and biophysical studies" ***Naturwissenschaften***, **92**, 355-366 (2005).
7. ***(Review Article)*** J. Katsaras, **M.-P. Nieh**, T. A. Harroun, M. Chakrapani, M. J. Watson "Neutron and X-ray scattering from biologically relevant materials" ***Physics in Canada*** March/April Issue 93-100 (2004).
8. Y. Guo, C. Mulligan, **M.-P. Nieh** "An Unusual Morphological Transformation of Rhamnolipid Aggregates Induced by Concentration And Addition of Styrene: A Small Angle Neutron Scattering (SANS) Study" ***Colloids Surf. A***., **373**, 42-50 (2011).
9. **M.-P. Nieh**, N. Kučerka, J. Katsaras "Formation Mechanism of Self-Assembled Unilamellar Vesicles" **Can. *J. Phys.***, **88**, 735-740 (2010).
10. N. Kučerka, D. Marquardt, T. A. Harroun, **M.-P. Nieh**, S. R. Wassall, D. H. De Jong, L. V. Schäfer, S. J. Marrink, J. Katsaras "Cholesterol in bilayers with PUFA chains: Doping with

DMPC or POPC results in sterol reorientation and membrane-domain formation" ***Biochemistry***, **49**, 7485–7493 (2010).

11. S. Mahabir, W. K. Wan, J. Katsaras, **M.-P. Nieh** "The Effects of Charge Density And Thermal History on the Morphologies of Spontaneously Formed Unilamellar Vesicles" ***J. Phys. Chem. – B.*** **114**, 5729-5735 (2010).
12. R. Soong, **M.-P. Nieh**, E. Nicholson, J. Katsaras, P. M. Macdonald "Pluronic F68 in Bicelles: Phase Structure and Lateral Diffusion from Combined SANS and PFG NMR Studies" ***Langmuir*** **26,** 2630-2638 (2010).
13. D. C. Bay, R. A. Budiman, **M.-P. Nieh** and R. J. Turner "Multimeric Forms of the Small Multidrug Resistance Protein EmrE in Anionic Detergent" ***Biochim. Biophys. Acta- Biomembranes*** **1798,** 526-535 (2010).
14. N. Kučerka, **M.-P. Nieh**, J. Katsaras "Asymmetric Distribution of Cholesterol in Unilamellar Vesicles of Monounsaturated Phospholipids" ***Langmuir,*** **25,** 13522-13527 (2009).
15. N. Kučerka, D. Marquardt, T. A. Harroun, **M.-P. Nieh**, S. R. Wassall, J. Katsaras "The Functional Significance of Lipid Diversity: Orientation of Cholesterol in Bilayers is Determined by Lipid Species." ***J. Am. Chem. Soc.,*** **131,** 16358-16359 (2009).
16. X. Gao, N. Kučerka, **M.-P. Nieh**, J. Katsaras, S. Zhu, J. L. Brash and H. Sheardown "Chain conformation of a new class of PEG-based thermoresponsive polymer brushes grafted on silicon as determined by neutron reflectometry" ***Langmuir*****, 25,** 10271-10278 (2009).
17. N. Kučerka, **M.-P. Nieh**, J. Pencer, J. N. Sachs, J. Katsaras "What determines the thickness of a biological membrane" ***General Physiol. & Biophys.*****, 28**, 117-125 (2009).
18. S. Hudson, J. Hutter, **M.-P. Nieh**, J. Pencer, L. Millon, W. K. Wan "Characterization of anisotropic poly(vinyl alcohol) hydrogel by small- and ultra small-angle neutron scattering" ***J. Chem. Phys.*****, 130**, 034903 (2009).
19. **M.-P. Nieh,** Z. Yamani, N. Kučerka, J. Katsaras, D. Burgess, H. Breton "Adapting a Triple-axis Spectrometer for Small Angle Neutron Scattering Measurement" ***Rev. Sci. Instrum.,*** **79,** 095102 (2008).
20. **M.-P. Nieh**, M. D. Guiver, D. S. Kim, J. Ding, T. Norsten "Morphology of Comb-Shaped Proton Exchange Membrane (PEM) Copolymers Based on a Neutron Scattering Study" ***Macromolecules,*** **41,** 6176-6182 (2008).
21. N. Kučerka, E. Papp-Szabo, **M.-P. Nieh**, T. A. Harroun, S. R. Schooling, J. Pencer, E. A. Nicholson, T. J. Beveridge, J. Katsaras "Effect of Cations on the Structure of Bilayers Formed by Lipopolysaccharides Isolated from *Pseudomonas aeruginosa* PAO1" ***J. Phys. Chem. B*** **112**, 8057-8062 (2008).
22. **M.-P. Nieh**, J. Katsaras, X. Qi "Controlled release mechanisms of spontaneously forming unilamellar vesicles", ***Biochim. Biophys. Acta - Biomembranes*** **1778**, 1467-1471 (2008).
23. B. Dahrazma, C. N. Mulligan, **M.-P. Nieh** "Effects of additives on the structure of rhamnolipid (biosurfactant): a small-angle neutron scattering (SANS) study" ***J. Colloid & Interface Sci.*** **319,** 590-593 (2008).
24. J. Pencer, A. Jackson, N, Kučerka, **M.-P. Nieh**, J. Katsaras "The influence of curvature on membrane domains", ***Eur. Biophys. J.*** **37,** 665-671 (2008).
25. N. Kučerka, J. Pencer, **M.-P. Nieh**, and J. Katsaras "Influence of cholesterol on the bilayer properties of monounsaturated phosphatidylcholine unilamellar vesicles" ***Eur. Phys. J. E.*** **23,** 247-254 (2007).
26. W. Feng, **M.-P. Nieh**, S. Zhu, T. A. Harroun, J. Katsaras, J. L. Brash "Characterization of protein resistant grafted methacrylate polymer layers bearing oligo(ethylene glycol) and phosphorylcholine side chains by neutron reflectometry" ***Biointerphases,*** **2,** 34-43 (2007).
27. L. E. Millon, **M.-P. Nieh**, J. Hutter, W.-K. Wan "SANS characterization of an anisotropic polyvinyl alcohol hydrogel with vascular applications" ***Macromolecules***, **40,** 3655-3662 (2007)
28. T. Abraham, S. R. Schooling, **M.-P. Nieh**, N. Kucerka, T. J. Beveridge, J. Katsaras "Neutron diffraction study of pseudomonas aeroginosa lipopolysaccharide bilayers" ***J. Phys. Chem. B***., **111**, 2477-2483 (2007).

29. **M.-P. Nieh**, J. Pencer, J. Katsaras, X. Qi "Spontaneously formed bimodal phospholipid unilamellar ellipsoidal vesicles and their interactions with helical domains of saposin C", ***Langmuir***, **22,** 11028-11033 (2006).
30. D. Dee, J. Pencer, **M.-P. Nieh**, S. Krueger, J. Katsaras, R. Yada "Comparison of solution structures and stabilities of native, partially unfolded and partially refolded pepsin", ***Biochemistry***, **45**, 13982-13992 (2006)
31. **M.-P. Nieh**, V. A. Raghunathan, C.-Y. Huang, J. Pencer, T. A. Harroun, J. Katsaras "Spontaneously forming unilamellar nano-sized vesicles – polydispersity, size, shape and stability" ***NSTI-Nanotech,* 2,** 709-712 (2006).
32. T. A. Harroun, C. M. Desrochers, **M.-P. Nieh**, M. J. Watson, J. Katsaras "0.9 T static magnetic field and temperature-controlled specimen environment for use with general-purpose optical microscopes", ***Rev. Sci. Instrum.***, **77**, 014102 (2006).
33. J. Pencer, **M.-P. Nieh**, T. A. Harroun, S. Krueger, C. Adams and J. Katsaras "Bilayer thickness and thermal response Of DMPC unilamellar vesicles containing cholesterol, ergosterol and lanosterol: a SANS study", ***Biochim. Biophys. Acta - Biomembranes***, **1720**, 84-91 (2005).
34. **M.-P. Nieh**, V. A. Raghunathan, S. R. Kline, T. A. Harroun, C.-Y. Huang, J. Pencer, J. Katsaras "Spontaneously formed unilamellar vesicles with path-dependent size distribution" ***Langmuir,* 21,** 6656-6661 (2005).
35. T. A. Harroun, M. Koslowsky, **M.-P. Nieh**, C-F de Lannoy, V. A. Raghunathan, J. Katsaras "A comprehensive examination of mesophases formed by DMPC and DHPC mixtures" ***Langmuir*, 21,** 5356-5361 (2005).
36. **M.-P. Nieh**, V. A. Raghunathan, C. J. Glinka, T. A. Harroun, J. Katsaras "Structural phase behavior of high-concentration alignable biomimetic "bicelle" mixtures" ***Macromol. Symp.***, **219**, 135-145 (2005).
37. B. Yue, C.-Y. Huang, **M.-P. Nieh**, C. J. Glinka, J. Katsaras "Spontaneously forming unilamellar phospholipid vesicles" ***Macromol. Symp.*, 219**, 123-133 (2005).
38. B. Yue, C.-Y. Huang, **M.-P. Nieh**, C. J. Glinka, J. Katsaras "Highly stable phospholipid unilamellar vesicles from spontaneous vesiculation: a DLS and SANS study" ***J. Phys. Chem. B,* 109**, 609-616 (2005).
39. T. A. Harroun, V. A. Raghunathan, **M.-P. Nieh**, J. Katsaras "Finite-size effects in biomimetic smectic films" ***Phys. Rev. E.*, 70,** 062902 (2004)
40. **M.-P. Nieh**, S. Kumar, R. Colby, R. H. Fernando, J. Katsaras "Effect of the hydrophilic size on structural phases of aqueous non-ionic Gemini surfactant solutions" ***Langmuir,* 20**, 9061-9068 (2004).
41. **M.-P. Nieh**, V. A. Raghunathan, C. J. Glinka, T. A. Harroun, G. Pabst, J. Katsaras "The magnetically alignable phase of phospholipid "bicelle" mixtures in a chiral nematic made up of worm-like micelles" ***Langmuir***, **20**, 7893-7897 (2004).
42. T. A. Harroun, M. Koslowsky, **M.-P. Nieh**, V. A. Raghunathan, J. Katsaras "Finite-size effects do not reduce the repeat spacing of phospholipid multibilayer stacks on a rigid substrate" ***Euro. Phys. J. E,* 13,** 359-362, (2004).
43. **M.-P. Nieh**, T. A. Harroun, V. A. Raghunathan, C. J. Glinka, J. Katsaras "Spontaneously formed monodispersed biomimetic unilamellar vesicles: the effect of charge, dilution and time" ***Biophys. J.*, 86,** 2615-2629, (2004).
44. T. A. Harroun, **M.-P. Nieh**, M. J. Watson, V. A. Raghunathan, G. Pabst, M. R. Morrow, J. Katsaras "Relationship between the unbinding and main transition temperature of phospholipid bilayers under pressure", ***Phys. Rev. E.*, 69**, 031906 (2004).
45. **M.-P. Nieh**, T. A. Harroun, V. A. Raghunathan, C. J. Glinka, J. Katsaras "Concentration independent spontaneously forming biomimetic vesicles" ***Phys. Rev. Lett.***, **91**, 158105 (2003).
46. **M.-P. Nieh**, V. A. Raghunathan, H. Wang, J. Katsaras "Highly aligned lamellar lipid domains induced by macroscopic confinement" ***Langmuir*, 19**, 6936-6941, (2003).
47. H. Wang, **M.-P. Nieh**, E. K. Hobbie, C. J. Glinka, J. Katsaras "Kinetic pathway of the bilayered-micelle to perforated lamellae transition" ***Phys. Rev. E,* 67**, 060902(R), (2003).

48. M. J. Watson, **M.-P. Nieh**, T. A. Harroun, J. Katsaras "Neutron sample cell suitable for the diffraction of aligned biomaterials and capable of exerting up to 370 MPa of hydrostatic pressure" ***Rev. Sci. Instrum.***, **74**, 2778-2781, (2003).
49. **M.-P. Nieh**, C. Glinka, S. Krueger, S. Prosser, J. Katsaras "SANS study on the effect of lanthanide ions and charged lipids on the morphology of phospholipid mixtures:" ***Biophys. J.,*** **82**, 2487-2498, (2002).
50. **M.-P. Nieh**, S. Kumar, D. Ho, R. Briber "Neutron scattering study of chain conformations in the energetically neutral pores of Vycor glass", ***Macromolecules,*** **35**, 6384, (2002).
51. P. Luchette, T. Vetman, S. Prosser, R. Hancock, **M.-P. Nieh**, C. Glinka, S. Krueger, J. Katsaras "Morphology of fast-tumbling bicelles: a small angle neutron scattering and NMR study", ***Biochim. Biophys. Acta.,*** **1513**, 83-94, (2001).
52. **M.-P. Nieh**, C. Glinka, S. Krueger, S. Prosser, J. Katsaras "SANS study of the structural phase of magnetically alignable phospholipid mixtures" ***Langmuir,*** **17**, 2629-2638, (2001).
53. **M.-P. Nieh**, David A. Hoagland, Bruce M. Novak "Chain stiffness of a high molecular weight polyguanidine prepared by living polymerization" ***Macromolecules,*** **31**, 3151, (1998).

In Press

INVITED TALKS

Jul.. 16, 2010 **University of Western Ontario**, Department of Physics, "Small Angle Neutron Scattering – Its Application on Soft Material Research And Recent Development at CNBC" London, Ontario, Canada.

Jun. 9, 2010 **National Research Council**, Canadian Neutron Beam Centre, "Self-Assembled Unilamellar Vesicles: Formation Mechanism, Characterization and Applications" Chalk River, Ontario, Canada.

Apr. 22 , 2010 **University of Rhode Island**, Department of Chemical Engineering, "Self-Assembled Nano-Liposomes as Diagnostic/Therapeutic Carriers" Kingston, Rhode Island, USA.

Mar. 12 , 2010 **Oak Ridge National Laboratories**, Neutron Scattering Science Division, "Small Angle Neutron Scattering – A Powerful Tool for Fundamental Material Research" Oak Ridge, Tennessee, USA.

Feb. 26 , 2010 **University of Connecticut**, Institute of Materials Science, "From Basic Research to Technology: Applications of Soft Materials" Storrs, Connecticut, USA.

Dec. 7 , 2009 **Oak Ridge National Laboratories**, Neutron Scattering Science Division, "Self-Assembled Liposomes – from Basic Understanding to Applications" Oak Ridge, Tennessee, USA.

Nov. 21, 2008 **National Taiwan University**, Institute of Biomedical Engineering, Taipei, Taiwan

Nov. 17, 2008 **National Chung-Hsing University**, Department of Chemistry, Taichung,

Nov. 14, 2008 **National Taiwan University**, Department of Chemical Engineering, Taipei, Taiwan

Nov. 13, 2008 **Institute of Nuclear Energy Research**, Taoyuan, Taiwan

Nov. 11, 2008 **Industrial & Technology Research Institute**, Hsinchu, Taiwan

Nov. 7, 2008 **Tung-Hai University**, Department of Physics, Taichung, Taiwan

Nov. 6, 2008 **Chung-Yuan Christian University**, Department of Chemical Engineering, Chungli, Taiwan

Aug. 14, 2008 **Wyeth Pharmaceuticals Inc.**, Pearl River, New York, USA

Nov. 30, 2007 **University of Western Ontario**, Centre for Chemical Physics, London, Ontario, Canada

Mar. 29, 2007 **McMaster University**, Department of Chemical Engineering, Hamilton, Ontario, Canada

Jun. 21, 2006 **American Conference on Neutron Scattering**, St. Charles, Illinois, USA

Nov. 18, 2004 **National Tsing Hua University**, Department of Chemical Engineering, Hsinchu, Taiwan, ROC
Sep. 28, 2004 **University of Western Ontario**, Department of Chemical Engineering, London, Ontario, Canada
May 25, 2004 **University of Ottawa**, Department of Chemical Engineering, Ottawa, Ontario, Canada
May 7, 2004 **Ryerson University**, Department of Chemical Engineering, Toronto, Ontario, Canada
Oct. 20, 2003 **NIST Center for Neutron Scattering**, Gaithersburg, MD, USA
Sept. 9, 2002 **NRC,** SIMS, Ottawa, Ontario, Canada

PROJECT REPORTS

- **M.-P. Nieh**, S. Kumar, R. Colby **"**Structural And Kinetic Study of Aqueous Solutions of Surfynol 400 Series – Experimental Results of Small Angle Neutron Scattering (SANS) and Dynamic Light Scattering (DLS)" Reports to Air Products and Chemicals Corp. (2001).
- **M.-P. Nieh**, S. Kumar, R. Colby **"**DLS Results and Rheological Behavior of Aqueous Solutions of Surfynol 400 Series" Reports to Air Products and Chemicals Corp. (2001).
- **M.-P. Nieh**, S. Kumar, R. Colby **"**Shear Induced Structure Breakdown and Time Dependence of the Surfynol 400 Series Aqueous Solutions" Reports to Air Products and Chemicals Corp. (2002).
- **M.-P. Nieh**, S. Kumar, R. Colby **"**Review on Aqueous Solution of Surfynol 400 Series" Reports to Air Products and Chemicals Corp. (2002).

CONFERENCE CONTRIBUTIONS

1. **M.-P. Nieh**, N. Kučerka, J. Katsaras "Can Multilamellar Vesicles Be Transformed into Unilamellar Vesicles?", 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada (Jun. 29, 2010).
2. N. Kučerka, **M.-P. Nieh**, J. Katsaras "Lipid Areas Obtained from the Simultaneous Analysis of Neutron and X-ray Scattering", 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada (Jun. 29, 2010).
3. N. Kučerka, D. Marquardt, T. A. Harroun, **M.-P. Nieh**, D. de Jong, L. Schafer, S.-J. Marrink, J. Katsaras "Cholesterol in PUFA Bilayers Studied by Small-Angle Neutron Diffraction", 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada (Jun. 27, 2010).
4. N. Kučerka, D. Marquardt, T. A. Harroun, **M.-P. Nieh**, S. R. Wassall, D. de Jong, L. Schafer, S.-J. Marrink, J. Katsaras "Cholesterol's Location in Bilayers is Determined by Lipid Composition", 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada (Jun. 27, 2010).
5. S. Mahabir, W. K. Wan, N. Kučerka, J. Katsaras, K. Littrell, L. Debeer-Schmitt, **M.-P. Nieh** "Mechanism for the Growth of 'Bicelles' ", 2010 American Conference on Neutron Scattering, Ottawa, Ontario, Canada (Jun. 27, 2010) ***– the Best Poster Award***.
6. **M.-P. Nieh**, S. Mahabir, W. Wan, J. Katsaras "Direct Evidence of Formation Mechanism of Self-Assembled Monodisperse Unilamellar Vesicles for Potential Delivery Carriers", 93th Canadian Chemistry Conference and Exhibition, Toronto, Ontario, Canada (May 30, 2010).
7. S. Mahabir, W. Wan, J. Katsaras, **M.-P. Nieh** "Investigation of Charge And Heating Rate on Spontaneously Assembled Unilamellar Vesicles Using Small-Angle Neutron Scattering", American Association of Pharmaceutical Sciences National Biotechnology Conference, San Francisco, CA, USA (May 16-19, 2010).
8. **M.-P. Nieh** "What Can Neutron And X-Ray Scattering Do for Silk Characterization?", AFMNet transgenic Spider Silk Workshop, Montreal, Quebec, Canada (Dec 9, 2009).
9. S. Mahabir, W. Wan, J. Katsaras, **M.-P. Nieh** "Using SANS to Study Unilamellar Vesicles", Canadian Institute of Neutron Scattering, Toronto, Canada (Oct 30, 2009).

10. **M.-P. Nieh**, J. Katsaras, E. Nicholson, R. Soong, P. MacDonald "Detailed Structure of A Magnetically Alignable Mixture – "Bicelles"", Canadian Association of Physicists, Moncton, New Brunswick, Canada (June 9, 2009).
11. **M.-P. Nieh**, Z. Yamani, N. Kučerka, J. Katsaras "New Development of Small Angle Neutron Scattering (SANS) Capability & Application at Canadian Neutron Beam Centre", Canadian Association of Physicists, Moncton, New Brunswick, Canada (June 8, 2009).
12. **M.-P. Nieh**, J. Katsaras, E. Nicholson, R. Soong, P. MacDonald "Detailed Structure of A Magnetically Alignable Mixture – "Bicelles"", 92th Canadian Chemistry Conference and Exhibition, Hamilton, Ontario, Canada (June 3, 2009).
13. **M.-P. Nieh**, G. Yuan, C. N. Mulligan "Small Angle Neutron Scattering (SANS) Study on the Morphological Transformation of Rhamnolipid Aggregates Induced by Styrene", 92th Canadian Chemistry Conference and Exhibition, Hamilton, Ontario, Canada (June 1, 2009).
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